



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAR 24 2011

ACTION MEMORANDUM

SUBJECT: Request for Ceiling Increase for a Removal Action at the Kerr McGee Chemical (Columbus) Site, Columbus, Lowndes County, Mississippi

FROM: Steve Spurlin, On-Scene Coordinator
Emergency Response and Removal Branch *03/18/2011*

THRU: Shane Hitchcock, Chief
Emergency Response and Removal Branch *03/18/2011*

TO: Franklin E. Hill, Director
Superfund Division *3/24/2011*

I. PURPOSE

The purpose of this Action Memorandum pursuant to Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) is to request and document approval of a ceiling increase for the proposed time-critical removal action described herein for the Kerr McGee Chemical (Columbus) Site (the Site) located in Columbus, Lowndes County, Mississippi. The Site poses a threat to public health and the environment that meets the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) section 300.415(b)(2) criteria for removal actions. The Site is a former creosote wood treatment facility that released creosote related hazardous substances through drainage pathways resulting in contamination of surface soils above the U. S. Environmental Protection Agency's (EPA) Residential Removal Action Levels (RAL).

On February 16, 2011, an emergency response was initiated under the On-Scene Coordinator's (OSC) authority to address hazardous substances in a soil pile containing creosote waste that posed direct contact and contaminant migration threats. An Emergency Action Memorandum documenting the decision to initiate the emergency response action under the OSC's \$250,000 authority was signed by the OSC on February 28, 2011.

The total project ceiling for this time-critical removal action, if approved, will be \$450,000 of which \$300,000 will be funded through the Regional Removal Allowance.

II. SITE CONDITIONS AND BACKGROUND

Type: Time-Critical Removal Action

Site ID: B491

CERCLIS ID: MSD990866329

A. Site Description

1. Removal Site Evaluation

The Site is a former creosote wood treating facility where creosote related hazardous substances are suspected to have released from the Site into the drainage pathways. The drainage pathways flow through residential and commercial areas, and are prone to flooding. In October 2010, the EPA Emergency Response and Removal Branch (ERRB) initiated a Removal Site Evaluation (RSE) focused on evaluating properties along the drainage pathways and in close proximity to the Site which may have been impacted by hazardous substances as a result of flooding or past facility operations.

During the week of October 25, 2010, representatives of the EPA Region 4 Science and Ecosystem Support Division (SESD), collected soil samples from residential and community properties adjacent to Site. The objective of the sampling investigation was to provide supporting data to aid EPA Region 4 in determining if soil in the surrounding neighborhoods had been impacted by operations at the former Kerr McGee facility. The sampling results have been reviewed by an EPA Region 4 human health risk assessor. Detected chemical constituents were compared to the applicable Regional Screening Levels (RSL). RSLs are conservative, long-term risk-based screening values developed by EPA to help identify contaminants of potential concern. Constituents reported at levels above their respective RSLs for residential surface soil were then compared against their respective Removal Action Levels (RAL). RALs are risk-based screening values developed by EPA to determine whether sample concentrations are sufficiently elevated that they may warrant a removal action. Exceedance of an RAL by itself does not imply that adverse health effects will occur.

SESD collected 49 soil samples from 39 properties. Samples were collected from residential and public properties (churches, cemetery, school) adjacent to the Site. Forty-six surface soil composite samples were collected from 43 sampling stations. (Note: Several properties had multiple sample stations). The surface soil samples were collected from a depth of 0 - 3 inches. Subsurface soil samples were collected from three residential properties at a depth of 12 - 15 inches to monitor whether subsurface soil had been impacted by Site activities. It should be noted that Station TN09 was a subsurface sample collected at the sample property as Station 12624. Station TN09 was a location previously sampled (surface soil only) by the EPA Resource Conservation and Recovery Act (RCRA) Division. Due to the variation in size of the properties, the samplers

used an authoritative design to determine sample aliquot numbers and locations. The goal was to yield a sample representative of the potential contamination of each property. Generally, the samples consisted of five aliquots; however, at times, the number and locations of the soil aliquots were adjusted because investigators avoided collecting samples from areas that could be potentially impacted from residential activities such as rubbish burning. Samples were analyzed by a contract laboratory for semi-volatile organic compounds (SVOC) and dioxin.

SESD previously collected surface soil and sediment samples for SVOCs and dioxin analyses from residential properties and ditches adjacent to the Site in April 2010 for the EPA Region 4 RCRA Division prior to EPA Superfund involvement.

The April 2010 RCRA data for the composite surface soil sample and its duplicate sample collected at a residential property (Sample TN09) indicated benzo(a)pyrene results of 1.8 milligrams-per-kilogram (mg/kg) and 2.6 mg/kg, respectively. The RAL for benzo(a)pyrene is 1.5 mg/kg. A sample collected during the ERRB October 2010 sample at a middle school indicated a benzo(a)pyrene detection of 4.8 mg/kg. An EPA quality assurance review of the October 2010 data identified a potential data quality issue for one dioxin congener. To address this data issue, EPA decided to re-sample for dioxin at all properties sampled in October 2010. Additional sampling was also needed at the school to define the extent of the benzo(a)pyrene contamination.

On February 15, 2011, EPA returned to the Site to conduct the dioxin re-sampling and to determine the extent of potential contamination at the school. Additionally, samples were collected at three locations identified by a community representatives based on concerns about potential exposure to children at the locations. The locations included a residential property, an apartment, and an area of a public park. Final SVOC results for the February sampling indicated no additional areas exceeding SVOC RALs. EPA is considering data results from the April 2010, October 2010, and February 2011 sampling in determining the need to conduct a time critical removal action at the Site.

2. Physical Location

The Kerr McGee Chemical (Columbus) Site is comprised of approximately 90 acres and is located at 2300 North 14th Avenue in Columbus, Mississippi.

3. Site Characteristics

The facility was operational from approximately 1928 to 2003. It is now closed. While operational, Kerr McGee manufactured pressure-treated railroad products such as wooden crossties, switch ties, and timbers. The production

processes at the Site utilized creosote and creosote coal tar solutions to produce pressure-treated wood products. The facility also used pentachlorophenol (PCP) for wood treating from the 1950s until the mid-1970s.

The facility previously maintained two, unlined, surface impoundments as part of the wastewater treatment system to settle out solids and preservatives from the process wastewater prior to final discharge to the City of Columbus publicly owned treatment works (a.k.a. wastewater treatment plant). Preservative was removed and recycled back to the production process. The sludge generated in the impoundment is identified by EPA as the RCRA listed hazardous waste K001 (bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol). These impoundments were closed in 1986, in accordance with a closure plan approved by the Mississippi Department of Environmental Quality (MDEQ).

Soil, sediment, and ground water are contaminated with chemicals associated with creosote and pentachlorophenol wood treating processes. Cleanup actions have occurred under State and federal RCRA programs, but they are incomplete. There is an active ground water treatment system on the former plant site that is operating under the oversight of the MDEQ RCRA program. Drainage ditches down gradient of the Site are contaminated, and contaminants may have spread to adjacent residential yards through flooding. Tronox, successor to Kerr McGee and the sole potentially responsible party, has declared bankruptcy. Efforts to settle the bankruptcy are ongoing, and in the interim some funds have been provided to keep the ground water treatment system operating. The funding set aside is inadequate to completely address the Site contamination.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Benzo(a)pyrene is a hazardous substance, listed in the Title 40 of the Code of Federal Regulations (CFR) Section 302.4, as referred to in Section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended. The presence of benzo(a)pyrene in soil at the Site constitutes a release of hazardous substance into the environment.

5. NPL Status

The Site is not currently on the National Priorities List (NPL); however, the EPA is moving forward with the process to propose the Site to the NPL.

6. Maps, pictures, and other graphic representations

Maps, pictures and other graphics will be made available upon request.

B. Other Actions to Date

1. Previous Actions

On February 14, 2011, the EPA ERRB was in Columbus, Mississippi to conduct sampling associated with the ongoing EPA Superfund Removal Site Evaluation related to the Kerr McGee Chemical (Columbus) Site. The first property to be sampled was located at 716 Waterworks Road, Columbus, Mississippi. Upon arriving at the property, OSC Steve Spurlin met with a technical representative for the property owner. The representative escorted OSC Spurlin to a soil pile on the property. A large culvert, consisting of a modified rail car, formerly sat at the location of the pile. The culvert had been removed from the ditch that traverses the property in approximately 1998. This ditch has been impacted by past releases of creosote from the former Kerr McGee facility. The pile contained a mix of soil and creosote material. Results for an EPA sample of the waste pile material indicated a benzo(a)pyrene result of 55 mg/kg which substantially exceeds the 1.5 mg/kg RAL.

The pile was not covered, and the property is accessible by the public. On February 15, 2011, OSC Spurlin was informed by the property owner that he had cut-up and sold the culvert as scrap metal several months earlier. The cutting and moving of the culvert resulted in the generation of the waste pile. An emergency response was initiated on February 16, 2011, to address the potential direct contact and migration issues for the hazardous substances. The waste pile was excavated and loaded into storage containers. The material is currently secured at the Kerr McGee facility.

Under the RCRA regulations and the Hazardous and Solid Waste Amendments (HSWA) that were passed in 1984, the facility has been required to do extensive investigation of both on-site and off-site contamination of groundwater, soil, and stream sediments and to perform clean-up operations in sections of the off-site stormwater ditches which drain the facility.

EPA issued the HSWA portion of the RCRA permit to Kerr McGee on August 1, 1995 requiring a RCRA Facility Investigation (RFI). The RFI was completed in two Phases: Phase I was completed in November of 1996, and included on-site soil, ditch sediment and groundwater sampling; Phase II was completed in October 1998, and included off-site sampling in the drainage ditches downstream of the facility. The RFI has delineated soil and sediment contamination in on-site areas of the facility and in the off-site ditches. Interim Measures consisting of sediment and soil removal and backfilling with clean soils in impacted areas of the off-site ditches were completed in October 2004 and documented in the Interim Measures Report dated April 29, 2005. Groundwater contamination is being addressed through a Corrective Action Plan implemented under the MDEQ Hazardous Waste Management Permit.

2. Current Actions

The MDEQ Hazardous Waste Program continues to oversee the existing groundwater pump and treat system currently operated by the appointed Bankruptcy Trustee. It is anticipated the oversight of the system will be transferred to the EPA Superfund Remedial Program when the Site is listed on the NPL.

C. State and Local Authorities' Role

1. State and Local Actions to Date

Under the RCRA and HSWA regulations, the facility has been required to do extensive investigation of both on-site and off-site contamination of groundwater, soil, and stream sediments and to perform clean-up operations in sections of the off-site storm-water ditches which drain the facility. The MDEQ Hazardous Waste Program was actively involved with oversight of the RCRA and HSWA actions conducted by the facility.

2. Potential for Continued State and Local Response

The MDEQ Hazardous Waste Program continues to oversee the existing groundwater pump and treat system currently operated by the appointed Bankruptcy Trustee. It is anticipated that the oversight of the system will be transferred to the EPA Superfund Remedial Program when the Site is listed on the NPL. EPA will continue to coordinate all Superfund Program actions with MDEQ.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

Benzo(a)pyrene present in on-site surface soils pose the following threats to public health or welfare as listed in Section 300.415 (b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP):

Section 300.415 (b)(2)(i) Actual or potential exposure to nearby human populations, or the food chain from hazardous substances pollutants or contaminants; Past investigations and remediation projects conducted by the facility prior to closing documented the presence of hazardous substances in the drainage pathways leading from the Site. The drainage areas proceed through residential areas prior to discharging to the Luxapallila Creek. The drainage ditches are prone to flooding which acts as a potential mechanism for transporting and depositing hazardous substances from the ditches onto the residential properties.

EPA sampling conducted in April 2010 at a residential property indicated benzo(a)pyrene results as high as 2.6 mg/kg. The RAL for benzo(a)pyrene is 1.5 mg/kg. A sample collected during the October 2010 sample at a middle school indicated a benzo(a)pyrene detection of 4.8 mg/kg. The residential property and the school provide potential exposure to hazardous substances to nearby human populations, especially children.

Benzo(a)pyrene is a member of a class of compounds known as polycyclic aromatic hydrocarbons (PAHs) which generally occur as complex mixtures and not as single compounds. PAHs are primarily by-products of incomplete combustion. Benzo(a)pyrene along with other PAHs is suspected of causing cancer in humans. The compound is bioaccumulative and does not break down easily in the environment. Benzo(a)pyrene likely causes cancer in humans, can cause skin disorders in humans and animals, and causes harmful developmental and reproductive effects.

Children as well as adults could come in contact with the contaminants via windborne dust, inadvertent ingestion of contaminated soil, and direct contact with the contaminated surface soils.

Section 300.415 (b)(2)(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate; Analytical results for surface samples collected at two properties indicated benzo(a)pyrene levels exceeding the Removal Action Level. The area is prone to flooding and flooding related erosion which increases the likelihood of hazardous substance migration.

Section 300.415 (b)(2)(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released; The surface soils with elevated benzo(a)pyrene levels are exposed to effects of the weather. The area is prone to flooding which can erode soils increasing the potential for migration of the hazardous substances onto adjoining properties or into the nearby drainage ditch which passes through a residential area and community park.

B. Threats to the Environment

Section 300.415 (b)(2)(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released; The surface soils with elevated benzo(a)pyrene levels are exposed to the effects of the weather. The area is prone to flooding which can erode soils increasing the potential for migration of the hazardous substances onto adjoining properties or into the nearby drainage ditch which passes through a residential area and community park before discharge to Luxapallila Creek. The creek is used for recreation and fishing. No ecological evaluation has been conducted, but erosion and transport of hazardous substances from the areas with elevated levels of hazardous substances could increase the potential extent of contamination in the creek requiring future evaluation.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The EPA proposed actions include the following:

- a. Maintain site security and limit access to those areas impacted by the removal action;
- b. Excavate soils and debris contaminated with hazardous substances exceeding the EPA Removal Action Levels;
- c. Conduct post-excavation sampling to ensure cleanup goals are met;
- d. Sample waste materials to characterize waste for disposal;
- e. Transport and dispose of all contaminated material generated during the February 2011 emergency response and by the proposed removal action;
- f. Provide temporary relocation to residents, as necessary;
- g. Restore areas which are disturbed by the removal action to their pre-removal state to the maximum extent practicable;

2. Contribution to remedial performance

The proposed removal action is warranted to address the threats discussed in Section III, which meet the NCP Section 300.415 (b) (2) removal criteria. The removal action contemplated in this Action Memorandum would be consistent with any remedial action.

3. Description of alternative technologies

It is not anticipated that alternative technologies will be utilized during the removal action.

4. Engineering Evaluation/Cost Analysis (EE/CA)

This proposed action is time-critical and does not require an Engineering Evaluation/Cost Analysis.

5. Applicable or Relevant and Appropriate Requirements (ARAR)

On-site removal activities conducted under CERCLA are required to attain ARARs to the extent practicable considering the exigencies of the situation. Off-site removal activities need only comply with all applicable federal and state laws, unless there is an emergency. This cleanup is being conducted as a time-critical removal action.

A letter to MDEQ requesting identification of State ARARs was sent on March 2, 2011. The MDEQ provided potential ARARs by letter dated March 9, 2011. The On-Scene Coordinator will evaluate the information provided by MDEQ to determine which State requirements will be considered as ARARs. All waste transferred off-site will comply with the CERCLA Off-Site Rule (40 CFR 300.440).

6. Project Schedule

Removal activities are anticipated to begin within two weeks of approval of this Action Memorandum. It is anticipated that once activities begin, this removal action will take no more than two months to complete.

B. Estimated Costs

<u>Extramural Costs:</u>	Current	Proposed Increase	Total
Regional Allowance Costs:			
ERRS	\$75,000	\$225,000	\$300,000
Non-Regional Allowance Costs:			
START	\$25,000	\$50,000	\$75,000
<u>Subtotal, Extramural Costs:</u>	\$100,000	\$275,000	\$375,000
20% Contingency:	\$20,000	\$55,000	\$75,000
TOTAL EXTRAMURAL COSTS:	\$120,000	\$330,000	\$450,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If this response action is significantly delayed or not taken, potential exposure to residents via direct contact with hazardous substances at levels exceeding Removal Action Levels (RAL) will continue. Failure to remove the hazardous substances exceeding the RALs will increase the likelihood of the hazardous substances further migrating in the environment.

VII. OUTSTANDING POLICY ISSUES

No outstanding policy issues have been determined at this time.

VIII. ENFORCEMENT

It is expected that the proposed actions will be conducted as a fund-lead removal action. See Attachment, "Enforcement Sensitive," for more detailed information.

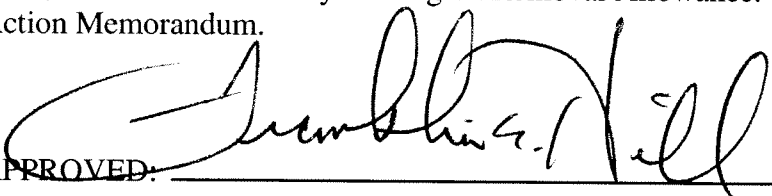
The total EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be \$726,300 using the following formula: (Total Extramural Costs + Total Intramural Costs) + (45.26% x (Total Extramural Costs + Total Intramural Costs)) or (\$450,000+\$50,000) + (45.26% x (\$450,000+\$50,000)) = \$726,300¹

¹Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Kerr McGee Chemical (Columbus) Site located in Columbus, Lowndes County, Mississippi developed in accordance with CERCLA as amended, and not inconsistent with the National Contingency Plan (NCP). The document is based on the administrative record for the Site.

Conditions at the Site meet the NCP Section 300.415 (b)(2) criteria for a removal action. This removal action is anticipated to be fund-lead with total project ceiling of \$450,000 of which \$300,000 will be funded by the Region Removal Allowance. I recommend your approval of this Action Memorandum.

APPROVED: 

Franklin E. Hill, Director
Superfund Division

DATE: 3/24/11

DISAPPROVED: _____

Franklin E. Hill, Director
Superfund Division

DATE: _____

Attachments:

1. Enforcement Confidential Addendum
2. EJ Map

ATTACHMENT 1
ENFORCEMENT CONFIDENTIAL ADDENDUM

Site: KERR-MCGEE CHEMICAL CORP (COLUMBUS)

BREAK: 2.9

Note: Due to the confidential nature of the material, Attachment 1 - Enforcement Confidential Addendum has been withheld. Withheld material is available, for Judicial review only, in the Records Center at EPA Region IV, Atlanta, GA.